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Health Burden of Chlamydia Linked to Risk-Exposure Rather than Risk-Response among African Americans in a High Infant-Mortality Community

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Background

Acquisition of a sexually transmitted infection (STI) during pregnancy increases chances of a poor birth outcome (PBO) including, preterm birth, low-birth-weight or infant infection. The most common bacterial STI worldwide is *Chlamydia trachomatis*. Infection is largely asymptomatic and prevalence of infection is increasing. Females between the ages of 15-24 who are African American currently have the highest rates of Chlamydia. In communities with large racial birth disparities numerous variables contribute to birth outcomes, including STIs, however it is unclear if similar to the burden, risk posed by STIs also varies by race.

Study Questions

Does the increased Chlamydia prevalence in the African American population impact risk of PBO compared to Caucasian woman?

Methods

A retrospective cohort study using birth-death vital records between 2008-2014 in Kalamazoo County, Michigan was conducted. The impact of Chlamydia infection on birth-weight, a measure of PBO, was modeled using multiple linear regression, controlling for race (of Color vs. White). The full model was adjusted for demographic factors, substance abuse, and numerous health related variables.

Results

Out of 21,043 singleton births, women of Color had a rate of Chlamydia infection of 10.45% (N=496/ 4746) while the rate for White women was 3.13% (N=509/16211). Chlamydia infection increased the chances of a PBO, with an OR of 1.82, 95% CI 1.55, 2.11, compared to uninfected individuals. In the adjusted model, accounting for factors that impact infant birth weight, Chlamydia remained a significant factor, reducing weight by 50.99g, however this did not vary by race. The nature of the data, limits this analysis, minimal data regarding STIs is provided in the birth record, thus the accuracy of the information, and details about timing or treatment of infection are not available. Additionally, the information was sourced from a single county, and the data was pooled over seven years, however due to the size of the dataset we believe these limitations minimal affect the generalizability of the data.

Conclusions

This study shows that despite the higher prevalence of Chlamydia infection in the African American community, infection poses a similar risk to all women. Infants born with lower birth weight have increased risk of serious health problems, most often due to prematurity. However, a number of additional risk factors negatively contribute to birth weight, the most significant in our community is the mother's race, followed by history of a previous PBO.

Public Health Implications

Understanding both the degree that various risk factors contribute to PBOs and the existence of local STI disparities; provides direction for the local healthcare systems and community to intervene in an impactful manner. Reducing the STI burden will improve birth outcomes for all women, while targeting disparities within the community and healthcare system will have a much bigger impact for those at risk.

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